AP Test Review - Graphical Displays

I. Categorical (Qualitative) Displays – Tip: When presented with data, **ALWAYS** draw a picture.

A. Dotplot

B. Pie chart

C. Bar graph – remember, bars don't touch.

II. Numerical (Quantitative) Displays

Tip: When presented with data, ALWAYS draw a picture!!

A. Histograms

a) large sets of data

b) use frequencies or relative frequencies on the y axis.

c) use relative frequencies when comparing different sized groups.

d) bars need to touch because they represent area.

B. Stemplots & back to back stemplots

a) smaller sets of data

b) gives shape and actual numerical data unlike histograms

c) stem if all of digits except the last one; the last one is called the leaf

III. Describing Quantitative Data

A. **S**hape

a) symmetrical

b) skewness

c) modes

Tip: When describing quantitative data, remember SOCS!!

B. **O**utliers

a) values outside overall pattern by eye

b) 1.5 x IQR rule

C. **C**enter

a) mean – nonresistant measure

b) median –resistant measure

Tip: Remember, when analyzing data, if the distribution is symmetric, use mean and standard deviation. If skewed or outliers, use median and IQR!!

D. **S**pread

a) standard deviation – nonresistant measure

b) Quartiles and Interquartile range (IQR) – resistant measure

IV. Boxplots

a) Graph of the 5 number summary (min, Q1, Median, Q3, max)

b) Mark outliers with a dot and do not extend the min/max lines to them.

Common Mistakes:

- Remember to title all graphs and label axes.
- For each axis, the scale must be equal.
- Attempt to avoid breaks in graphs when appropriate.
- It is inappropriate to give multiple measures of center and spread. Choose based on whether you need resistant measures or not. Be exhaustive without being repetitive.
- When comparing distributions, do not list data. Use words to compare. For example, do not say "the mean of population 1 is 6 and the mean of population 2 is 14". Rather, say "the mean of population 1 is 6 which is much lower than the mean of population 2 of 14".
- Other considerations when describing the shape of a distribution are clusters and gaps.